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ABSTRACT

This paper describes ten generic characteristics that are essential for the meaningful evaluation of a teacher education program. A summary is offered of each characteristic, problems that can be encountered if the characteristic is ignored, and how the characteristic is essential to the operation of program evaluation. These ten characteristics include: (1) faculty, administrator and governing body commitment to the evaluation process; (2) the evaluation system must be an integral part of the total educational program; (3) the evaluation system must be based on the general and specific objectives of the program; (4) the system must be longitudinal and continuous; (5) the system must reflect the state-of-the-art of evaluation; (6) the system must reflect thorough planning; (7) adequate computer resources must be available; (8) there must be an effective feedback system; (9) results of the evaluation must be usable in decision making; and (10) the evaluation system must have a self evaluation component. (JD)

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DESIGN CHARACTERISTICS FOR MEANINGFUL PROGRAM EVALUATION[1]

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Abstract

Evaluation of programs in higher eduction has been a major problem facing institutions in the past decade. Tennessee Technological University has developed several systems that are useful in program evaluation. The purpose of this paper was to describe ten generic characteristics that were essential for the success of the projects undertaken. Institutions desiring to develop systems for program evaluation will have greater success if they utilize these characteristics in their work.

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DESIGN CHARACTERISTICS FOR MEANINGFUL PROGRAM EVALUATION

Program evaluation has been one of the most difficult problems facing institutions of higher education during the past decade. Adequate systems for program evaluation are essential for improving college teaching in all disciplines and in satisfying the accountability demands of legislative bodies, governing boards and accreditation agencies.

In 1973, Tennessee Technological University (TTU) developed and implemented a systems Model for the evaluation of the programs for the preparation of teachers at the bachelor's and master's levels. This evaluation system has been successfully used for 13 years to improve all aspects of the programs for the preparation of teachers. The system has also been successfully adapted to the evaluation of other types of programs in higher education (Ayers, 1984; Ayers & Collins, 1985).

It has been found that ten generic design characteristics were essential to the success of the evaluation system in use at TTU. Institutions desiring to develop and implement a successful evaluation system need to take into account these characteristics.

The purpose of this paper was to present ten major design characteristics that were found to be essential for a meaningful evaluation of a higher education program. Secondary purposes of the paper were to present (1) some of the problems that may be encountered by an institution if one or more of the characteristics are ignored and (2) to summarize how the

characteristics contributed to the success of the teacher education program evaluation Model implemented at TTU.

Design Characteristics

Ten generic design characteristics are essential for the meaningful evaluation of a higher education program. Following is a summary of each characteristic, problems that can be encountered if the characteristic is ignored, and how the characteristic was essential to the operation of program evaluation at TTU and other institutions who have adopted or adapted the work of the University.

1. **The faculty, administrators and governing body of an institution must be committed to conducting program evaluation.**

In order for a program of evaluation to be successful, the faculty, administrators and governing body must be committed to the concept. If an evaluation system is developed in a vacuum without adequate input from the faculty, the results of the evaluation effort may be lost. The faculty will be the primary consumers of the results of a program evaluation. Therefore, if the faculty is to make adequate use of the data and results from such a study, they must have adequate input to seek answers to the questions relative to program development and improvement. In a similar manner, the administrators and governing body of an institution must be involved in the project, in order to provide the needed resources. Without adequate involvement and commitment on the part of the faculty, administrators and governing body of an institution, the evaluation efforts will not succeed.

At TTU, the initial impetus for the development and implementation for program evaluation came from efforts to meet the evaluation standards of the National Council for the Accreditation of Teacher Education. From this initial beginning the Tennessee Technological University Teacher Evaluation Model concept was applied to the evaluation of programs sponsored by such agencies as the National Science Foundation. Throughout the appropriate faculty, administrators, and to some extent the governing bodies of the institution were involved in the evaluation system. Because of this involvement, the faculty and administrators felt the project was a part of their efforts in program development and improvement.

2. **Evaluation in higher education must be viewed as a part of the total program and not as an isolated project.**

For many years industry has spent a significant portion of the overall cost of a product on evaluation. All industries in the competitive market-place have systematic, valid procedures for testing how well its products perform the functions for which they were designed. An ultimate goal of a program in higher education is to change a student by imparting knowledge. In turn the student uses this knowledge to perform a function in society. Institutions of higher education are only beginning to realize the value of the industrial model for the evaluation of its product, i.e., the graduates of its programs. It is realized; however, that the application of the industrial model is difficult when dealing with people.

In order for an evaluation project to be viewed, other than as an isolated research project, it must be made a part of the

total program. Sufficient resources must be allocated to the evaluation efforts and they must be made a part of the total program. If an evaluation project is carried out in isolation, the results will not be used for program development and improvement.

At TTU, the evaluation projects have been systematic and ongoing for as many as 13 years. An individual has been assigned the responsibility for conducting the evaluation efforts, and the administration of the institution supports the evaluation efforts and has provided the needed resources. Evaluation has been built into all aspects of the program for the preparation of teachers.

3. **Evaluation must reflect the goals and objectives of specific programs and overall program objectives of the institution.**

In order for evaluation to be carried out, any plan that is developed must be based on the objectives of each specific program (e.g., teacher education, electrical engineering, sociology and accounting) and the overall objectives of the institution. The specification of objectives of a program is an inherent element in an adequate evaluation system. If the plan for evaluation is not based on specific and general objectives for both the program and the institution, the evaluation may turn into a useless exercise. The results of the evaluation will not be tied to any specific effort that may have been made in the program.

The systems developed and implemented at TTU allow for program evaluation and general evaluation based on specified objectives. The instruments used to collect data reflect the specific and general objectives of the respective programs.

4. **Evaluation must be continuous and longitudinal in nature.**

In order for evaluation of a program to be meaningful, it must be continuous and should be longitudinal. For effective improvement all aspects of the program must be evaluated on a regular basis and there must be continual input from students, faculty, and graduates of the program. Industry uses a continuous model for evaluation in order to change and improve the products it turns out. The analogous situation holds for programs in higher education. Evaluation that is continuous will allow for measurement of changes that may take place in a program and for determining where problem areas develop.

Application of the Tennessee Technological University Teacher Evaluation Model at the University has been in existence on a continuous basis for 13 years. There has been continuous evaluation of all aspects of the program with data being collected from graduates for as many as five years after they received a degree.

5. **Evaluation must provide for and reflect a knowledge of the state-of-the-art in educational research and measurement it relates to a particular program.**

The state-of-the-art of program evaluation is rapidly changing. Since the 1960's many institutions and agencies have allocated resources to the development of techniques that are useful in program evaluation. If an institution is going to develop and operate an effective plan for program evaluation, it must constantly be aware of the changes that are being made in evaluation based on research.

TTU has developed a systematic plan to review the literature on a continuing basis. Also contacts have been made with a

variety of agencies and organizations that are involved in basic and applied research related to various types of program evaluation.

6. **Evaluation must reflect thorough planning prior to implementation.**

The implementation of an evaluation system within an institution can be a difficult task. Adequate planning prior to implementation is essential if the objectives of the evaluation (i.e., program development and improvement) are to be recognized. Following are five points that must be considered in planning and implementing evaluation of a program in higher education.

Cooperation With Outside Agencies. If outside agencies are to be involved in a project in any way, agreements must be reached on the type cooperation that is needed and expected. For example in the evaluation of programs for the preparation of teachers it is essential to obtain firsthand information from graduates on the job in the classroom. Prior to the initiation of such a study it is essential to obtain the permission and consultation of school administrators. Also, it may be necessary to consult with and have the permission of local teacher negotiating groups. In some areas of the country extensive followup evaluation in the schools has not been possible because the local bargaining group for the teachers did not make provision for such activities in their contracts. Without a full understanding on the part of the school administrators of the use of the data that will be collected, the project cannot succeed. Analogous situations exist in other program areas (e.g., engineering).

Subject Selection. Various methods exist for the selection of subjects to participate in program evaluation. The basic premise of subject selection is that the process must be a defensible system and should be the same from year to year. The primary constraint is the availability of resources. It appears the most practical system of subject selection, as it relates to followup of graduates of a program, is to select individuals from a pool who volunteer to participate in the project.

Data Sources. Evaluation can be undertaken from a variety of sources; however, data sources must be wide and varied. Frequently, in the past institutions have relied solely on the use of questionnaires to evaluate programs. Questionnaires were developed for use with students, graduates and faculty. These individuals are important sources of data; however, information collected through questionnaires may be inadequate. Data needs to be collected on all aspects of the program (e.g. faculty, facilities, students, financial resources to support the program, and the curriculum). Only in this way can a comprehensive evaluation be made that will be useful in program improvement and development.

Qualitative and Quantitative Data. As an integral part of any evaluation effort, consideration must be given to both qualitative and quantitative data collection. Quantitative data can readily lead to analyses allowing for use of inferential statistics. However, in many cases, qualitative data can be more meaningful and useful to faculty and administrators in program development and improvement.

Data Collection and Instrumentation. The points in time and the system for data collection must be developed. As a part of this system, instrumentation must be selected or developed that can be used to collect quantitative and qualitative data that will measure how well the objectives of the program are being met. Numerous standardized instruments are in existence that can be used; however, it may be to the advantage of the institution to develop instrumentation to meet its own needs. As an integral part of the development of the plan for instrumentation and data collection, personnel that will be used to collect data must receive special training. This is essential if reliability of data collection is to be maintained across the years of a project.

Throughout the life of the evaluation project, instrumentation and methods of data collection must be systematic. For example, if an instrument is used and the following year a different one is used that measures different objectives, data from the two collection periods may not be compatible. Thus, one or more years of useful data may be lost in a longitudinal study.

Comments About Planning. It is felt that if any of the above constraints are not followed, the results of the evaluation efforts may be suspect and will be of little use for program development and improvement. A detailed set of manuals has been developed for the systematic evaluation projects at TTU. These manuals detail the sources and types of data to be collected, cooperative agreements, selection of subjects, points of data collection, types of data to be collected, instrumentation to be

used, and needed training for personnel. These manuals have served as sources for replication of the project at other institutions.

7. **Evaluation must reflect the most efficient use of resources for data processing, storage, retrieval and analyses.**

Prior to the start of any major evaluation project requiring the collection of large amounts of data, an institution must inventory its resources relative to those available for data processing, storage, retrieval and analyses. A decision must be made at the start of a project relative to the amount of data to be collected and stored and how it can be retrieved. Access to high speed computers is essential if a project will be attempted that involves the collection of large data sets. For example one institution found that after collecting data for one year on a sample of 30 graduates who were public school classroom teachers, the computer available did not have adequate disk or tape storage. As a result the data analyses had to be carried out in a cumbersome manner resulting in the use of additional resources.

TTU is fortunate in having large scale computers with adequate storage. Therefore the problems of data storage, analysis and retrieval within the evaluation projects have been minimized. It should be pointed out there have been problems with data management and the control of data. These problems have been due to the lack of an adequate software package for the management of the type data collected as a part of the TTU evaluation project. Also, the large amount of data collected each year and kept in continuous storage for use in making

comparisons across years and for special analyses has caused some minor problems.

8. **An evaluation system must include a component for effective communication.**

An effective system must be developed for communication with those closely associated with the evaluation project and those that will use the end results. There must be an effective system of communication for input into the project from the faculty who will eventually use the data and results. In turn there must be an effective system for communication of the results to the faculty. The most efficient system for providing faculty input into the project is to make certain at the outset, the faculty feels it is their evaluation project and their input is of value and use. The most crucial element relative to the use of the results of the evaluation project, is a system of feedback to the faculty and administrators who will make use of the data and results (Ayers, 1984). If the results of the evaluation project are not disseminated and used, then it may as well have not been conducted.

An integral part of the evaluation project in use at TTU is a system for dissemination of the results so they may be used in program development and improvement. TTU uses a systems approach for the operation and evaluation of its teacher education programs. Thus there is a natural built-in system of feedback loops. On the practical side the institution prepares an annual report that is made available to the faculty and administrators as well as special reports and papers relative to specific areas and studies.

9. **An evaluation project must provide for a workable system of evaluation data utilization in program decision making.**

The success of an evaluation project may be measured by the use that is made of the results. If the results from the project are not used in a meaningful manner, then the evaluation may be a total failure and valuable resources wasted. Dissemination of the results of the evaluation may not be sufficient to make changes and needed improvements in a higher education program. Changes and improvements can be obtained if an institution has a built-in system for the utilization of the results of an evaluation project.

As was noted under Characteristic 8 above, TTU has a built-in system for the utilization of data. This built-in feedback loop makes it mandatory that evaluation results be utilized in the operation of a program.

10. **An evaluation project must have a component to assess the effectiveness of the evaluation process.**

Industry constantly examines the standards and procedures employed in the evaluation of its products. Any project designed to evaluate a program should have a built-in system to assess its effectiveness as a tool for gathering data and making meaningful decisions. Therefore, any project utilized for program evaluation should have a system in place for self assessment. This assessment can take the form of an external review by consultants or an internal review by the project staff. Such a subsystem within the process for the evaluation of a program should be developed at the beginning of a project. Such a subsystem will serve to validate the total process.

The evaluation system in use at TTU has been under constant scrutiny both internally and by external experts. In this manner the validity of the project has been assured and the effectiveness of the process has remained at a high level.

Summary and Recommendations

This paper has described ten generic characteristics that must be taken into account in the development of an adequate system for the evaluation of programs in higher eduction. These ten characteristics include: (1) faculty, administrator and governing body commitment to the evaluation process; (2) the evaluation system must be an integral part of the total educational program; (3) the evaluation system must be based on the general and specific objectives of a program; (4) the system must be longitudinal and continuous; (5) the system must reflect the state-of-the-art of evaluation; (6) the system must reflect thorough planning; (7) adequate computer resources must be available; (8) there must be an effective feedback system; (9) results of the evaluation must be usable in decision making; and (10) the evaluation system must have a self evaluation component. If these characteristics are not inherent in program evaluation, the system in use will be adequate and the results will be usable in development and program improvement.

The characteristics described in this paper have been applied largely at TTU to programs for the preparation of teachers, other school personnel, administrators and electricial engineers. It has been found that other institutions have attempted to replicate much of the work related to teacher program evaluation work. In those instances where these design

characteristics were followed, satisfactory results were achieved.

It is recommended that any institution implementing a system for program evaluation give consideration to the design characteristics outlined in this paper. It is felt the institution will have fewer problems and will have a more efficient system that will be useful for program development and improvement.

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